California Regional Water Quality Control Board
Santa Ana Region

July 1, 2003

ITEM: 13

SUBJECT: Status Report on Wyle Laboratories, Norco

DISCUSSION:

Wyle Laboratories (Wyle) is a scientific testing facility located on about 429 acres of property in the City of Norco, Riverside County. Wyle has occupied the site since about 1957. Activities at the site consist of testing a wide variety of parts, subsystems, munitions, rocket motors, electronics, and other items in simulated environments (low and high temperatures, wind, rain, shock, liquid cryogenic conditions, etc.). In late 1999, Wyle informed Board staff that a recent field investigation found that past activities at the site had resulted in impacts, primarily by chlorinated volatile organic compounds (VOCs), to soil and groundwater. Since that time, Board staff has been overseeing the assessment of soil and groundwater at Wyle. Although residential development has existed immediately northwest and west of Wyle for many years, residential development has only recently occurred immediately south of Wyle. A number of local residents have expressed concerns regarding possible health impacts associated with the Wyle site. During the Public Forum at the May 16, 2003 Board meeting, several residents expressed their concerns to the Board. As a result, the Board requested staff to prepare a status report regarding the Wyle facility.

Site Description

The Wyle facility is located in a westward sloping canyon watershed in a hilly section of the City of Norco (Figure 1). The site is bounded by undeveloped areas on the north, the Hidden Valley Golf Course on the east, and by residential development on the northwest, west, and south. A small ephemeral stream flows through the canyon during wet periods. This ephemeral stream exits the site to the southwest and flows through a subsurface storm drain into a concrete channel that flows to the Prado Flood Control Basin. The stream flows only during wet periods, generally from early winter through spring. Groundwater at the site occurs in the alluvium and weathered bedrock in proximity to the ephemeral stream. Groundwater appears to be limited due to the existence of granitic bedrock near the ground surface.

Wyle is an independent testing facility that performs physical testing of a wide range of devices for various clients, including the United States Government. Typically, a device that is manufactured for use in a harsh environment would be delivered to Wyle to determine how well the device would be expected to endure. Wyle subjects the device to appropriate testing, which could include conditions such as extreme temperatures, simulated sand storms, salt fogs, sudden shocks, shaking, detonations, etc. Following the testing, the device is reportedly sent back to the client.

A number of buildings are located throughout the site where various testing activities are conducted (Figure 2). These buildings are divided geographically into areas that are defined by the general type of testing conducted in those areas. These areas are identified by letters. Examples are the hypergolic testing and fuel storage area (Area E), dynamic and environmental simulation area (Area F), etc. Chlorinated solvents, petroleum hydrocarbons (primarily hydraulic oil), and various other chemicals have been used at the site.

Wyle is in the process of vacating the site and has already sold the property to St. Clair, a development company, with an agreement that Wyle will continue operations until May 2004. St. Clair intends to develop a planned community, Creekside Ranch, consisting of about 385 residential units that focuses on large lots and animal keeping. A revised Notice of Preparation for preparation of a draft environmental impact report for the proposed development was issued by the City of Norco in May 2003.

Site Investigation Summary

In September 1999, Kennedy/Jenks Consultants (on behalf of Wyle) contacted Regional Board staff and submitted a report titled “Report of Release for Wyle Laboratories.” The report documented the findings of a due diligence investigation conducted by Wyle. Kennedy/Jenks also subsequently provided Board staff with the following reports:

- Draft Phase II Environmental Site Assessment Report (June 1999)
- Remedial Action Plan, Hydraulic Oil Contaminated Soil (March 1996)
- Preliminary Environmental Investigation (May 1995)
- Wyle Laboratories Phase I Environmental Assessment Report (August 1994)

In the mid-1990’s, Wyle conducted a soil investigation and performed cleanup of primarily hydraulic oil releases at one area of the site under the oversight of the Riverside County Department of Environmental Health. Approximately 800 cubic yards of petroleum impacted soil and 50 cubic yards of VOC impacted soil were excavated and disposed off-site. Between March and May 1999, Wyle collected and analyzed about 140 soil samples from previously identified areas of concern and installed eight groundwater monitoring wells. The soil samples were

collected from the surface to about 10 feet below ground surface (bgs), and were analyzed for a variety of constituents. The groundwater monitoring wells were installed to depths ranging between 11 and 20 feet bgs. The depth to groundwater in the wells ranged between about 3 to 13 feet bgs.

The soil and groundwater investigations that were conducted found that soil and groundwater had been impacted by various contaminants, primarily VOCs. The highest concentrations of VOCs were found primarily in, and downgradient of, Area F, near the middle of the site. The highest concentration of trichloroethylene (TCE) detected in soil was 150,000 ug/kg near the drainage outfall of Building F-2, a hydrodynamic test bay. This soil was excavated during the previous hydraulic oil cleanup overseen by the County. Otherwise, the highest concentrations of TCE and perchloroethylene (PCE) found were 82,400 ug/kg and 13,500 ug/kg at depths of 2 and 3 feet, respectively, from a boring at Building F-3. Concentrations of TCE and PCE were significantly lower in the other soil samples at the site where TCE, PCE or other VOCs were detected. Constituents other than VOCs were not detected in the soil samples in concentrations that would pose a threat to groundwater or surface water.

TCE was the most frequently detected VOC in the initial sampling of the eight monitoring wells. TCE was not detected in the three wells upgradient of Area F, but was detected in four of the five wells downgradient of Area F at concentrations between 11 and 642 parts per billion (ppb). However, a sample from a temporary well at Building F-10 detected TCE at a concentration of 8,500 ppb. The state maximum contaminant level (MCL) for TCE in drinking water delivered in public water supply systems is 5 ppb. Hydrazine (a colorless liquid primarily used as rocket fuel) was detected in two wells at concentrations of 5 and 14 ppb (a MCL or action level has not been established for hydrazine).

In September 2000, Board staff received the results of the third round of sampling for the monitoring wells. This, and the second round of sampling, was consistent with the initial round of sampling. Based on discussions with Board staff, Kennedy/Jenks initiated preparation of a work plan for additional soil and groundwater characterization, and submitted the work plan in April 2001. Based on further discussion with Board staff, an expanded workplan was submitted in October 2001. Board staff accepted the work plan in November 2001, and also requested that a work plan be prepared to investigate the septic tank disposal systems at the site. A report documenting the results of the additional soil and groundwater characterization was submitted in February 2002. The additional characterization consisted of drilling three soil borings, installing one replacement well and six additional groundwater monitoring wells, and installing one vapor probe. A work plan for the investigation of the septic tank disposal systems was submitted in April 2002. A report documenting the results of the septic tank system investigation was submitted in December 2002.

TCE was the primary VOC detected in the four new wells that were installed at, and immediately downgradient of, Area F. TCE was detected in these four wells in concentrations ranging from 410 to 3,100 ppb. VOCs were not detected in the two new wells installed upgradient of Area F. Board staff had also requested sampling for NDMA (an ingredient of liquid rocket fuel). NDMA was detected in two wells at concentrations of 3.5 and 7.2 parts per trillion (ppt). The MCL for NDMA is 10 ppt.

The septic tank disposal system investigation consisted of sampling the sludge from each septic tank and sampling the soil beneath each leach line. The sludge from one septic tank contained elevated concentrations of VOCs, specifically vinyl chloride at a concentration of 6,500 ppb. Many of the septic tanks contained low concentrations of semi-volatile organic compounds and petroleum hydrocarbons. None of the soil samples from beneath the leach lines contained any constituents in concentrations of concern. Based on the results of the sludge and soil sampling, and the groundwater monitoring that had been performed at the site, staff concluded that the septic tank systems do not appear to be a significant current source of water quality impacts at the site.

Subsequent to the submittal of the soil and groundwater report in February 2002, Wyle conducted three more rounds of groundwater sampling. Low concentrations of perchlorate (up to 7.9 ppb) were detected in two wells (the drinking water action level for perchlorate is 4 ppb). Hydrazine has not been detected since the initial detection in two wells in 1999. VOCs have not been detected in six of the 14 wells at the site. TCE is the predominant VOC found in all but one of the remaining wells. TCE has been detected intermittently above 1,000 ppb in six of the wells at the site, with a maximum detected concentration of 4,800 ppb. The one well where TCE is not the primary VOC detected is Well 5A, the most downgradient well located at Wyle's property line where the ephemeral stream exits the site. In this well, TCE is below 10 ppb, but cis-1,2-DCE and trans-1,2-DCE, breakdown products of TCE, have been detected at concentrations as high as 140 and 83 ppb, respectively. The MCLs for cis-1,2-DCE and trans-1,2-DCE are 6 and 10 ppb, respectively. This is an indication that natural attenuation processes at the site are degrading TCE as it migrates in groundwater down the canyon from Area F to Well 5A. Samples obtained from Well 5A are likely representative of the quality of groundwater leaving the site, indicating that cis-1,2-DCE and trans-1,2-DCE are the primary VOCs in groundwater leaving the site.

Wyle sampled surface water in the ephemeral stream once in 1999, 2001, and 2002, and three times in 2003. Samples were taken in 2001 and 2003 where the ephemeral stream exits the site and at three upstream locations. In 1999 and 2002, only the water leaving the site was sampled. VOCs were not detected at the two most upstream locations, near the middle of the site, but were detected at low concentrations in the surface water leaving the site (near Well 5A), and at a sampling location immediately upstream from Well 5A. In April 2003, Board

staff sampled the surface water leaving the site and in the concrete channel approximately 1,000 feet downstream from the site. The quality of the surface water leaving the site was consistent with the previous samples obtained by Wyle. Of the seven samples taken of surface water leaving the site, TCE was detected in 6 samples ranging between 1.9 and 12 ppb (4 samples at or below 3.1 ppb), cis-1,2-DCE was detected in five samples ranging between 2.8 and 11 ppb (three samples at or below 7.0 ppb), trans-1,2-DCE was detected in six samples ranging between 1.1 and 7.1 ppb, and vinyl chloride was detected in two samples at 1.5 and 1.7 ppb. These concentrations are near or below the MCLs for drinking water delivered in public water supply systems. The VOCs noted above were non-detectable in the sample obtained by Board staff approximately 1,000 feet from the site. This is consistent with Board staff experience that these volatile compounds at these low concentrations tend to volatize to non-detectable levels in surface water a very short distance from their source. Seasonally, it is evident that some groundwater at the site surfaces to become surface flow in the stream channel. This groundwater is considered to be the likely source of the VOCs that have been detected in surface water at the site.

In a letter dated April 28, 2003, Board staff requested submittal of a work plan by June 6, 2003, for off-site groundwater characterization, additional limited on-site groundwater characterization near Well 5A where surface water and groundwater leave the property, and on-site soil and groundwater remediation. VOCs are the primary contaminants of concern at the site, and are present in concentrations of concern in a few isolated source areas at the site. Other contaminants, such as perchlorate, hydrazine and NDMA, have been detected in only a few instances in groundwater samples at very low concentrations that do not represent a water quality concern. Very low concentrations of VOCs (generally below drinking water MCLs) have been detected in surface water that leaves the site in the ephemeral stream that flows during, and after, periods of sufficient rainfall. Although VOCs are no longer present in the surface water at a distance of about 1,000 feet from the site, Board staff requested that the work plan address the VOCs in surface water leaving the site.

On June 5, 2003, Wyle submitted a Scope of Work for an off-site groundwater investigation and additional investigation of groundwater in the area of Well 5A. On June 6, 2003, Wyle submitted a work plan for investigation and remediation of soil and groundwater at the site. Board staff is currently reviewing these work plans. Board staff will consider all comments by interested parties before responding to the work plans.

Community Concerns

Approximately two years ago, a number of local residents began expressing concerns regarding possible past, present and future public health effects regarding the Wyle site. A group of residents formed a community action group named Involved Neighbors Seeking Information, Safety and Truth (INSIST). At

the request of local residents, the Norco City Council convened a Community Town Hall Meeting on February 16, 2002 to address the community's concerns. Representatives from Wyle and staff from various local, state and federal agencies attended the meeting. Agencies represented at the meeting included the Regional Board, South Coast Air Quality Management District, Riverside County Department of Environmental Health, State Department of Toxic Substances Control, Office of Hazardous Materials Enforcement (U.S. Department of Transportation), and the Riverside County Sheriff Department (Hazardous Device Team). Each agency summarized its responsibility and activities regarding Wyle, and answered questions from the residents. The collective opinion among the agencies appeared to be that soil and groundwater impacts did exist at Wyle, efforts were being undertaken to address those impacts, and there did not appear to be any information available to indicate that the site posed a threat to public health. The City of Norco obtains its water supply from wells that are located several miles from, and not downgradient of, Wyle. Therefore, the Wyle site would not be expected to pose a threat to the City of Norco's drinking water supply.

Local residents, primarily represented by INSIST, have continued to express their concerns regarding past and present conditions that may have impacted, and proposed future activities (i.e. site cleanup) that could threaten to impact, public heath. INSIST has expressed their concerns to the City of Norco and various local, state and federal agencies. It appears that a primary concern is the number of thyroid disorders and thyroid cancers near Wyle that are alleged to have been caused by Wyle's activities.

At the request of local residents, a meeting was held at the Regional Board office on June 10, 2003. The purpose of the meeting was to provide a forum whereby a representative group of local residents could speak to all of the agencies that have responsibility or jurisdiction regarding activities at the site that may have caused releases of contaminants to the environment. Attending the meeting were representatives of the Regional Board, United States Environmental Protection Agency (USEPA), United States Agency for Toxic Substances and Disease Registry (ATSDR), State Department of Toxic Substances Control (DTSC), State Department of Health Services - Radiologic Health Branch, Riverside County Department of Environmental Health, and the South Coast Air Quality Management District. A presentation was given by INSIST, and was followed by questions to the regulatory agencies. An open exchange regarding various issues ensued. The residents' primary concerns appeared to be the number of thyroid cancers and disorders in the immediate area that they believe were likely caused by Wyle's past activities, areas on and off the site where contaminants may be present but have not yet been identified, and the health risk that local residents may be subject to as a result of Wyle's current operations and expected site cleanup activities. Two issues expressed by the residents were (1) the Regional Board does not have direct jurisdiction, responsibility or the expertise for overseeing many of the health concerns that the residents have,

and an agency such as DTSC or USEPA would be more appropriate as the lead agency, and (2) the Regional Board does not have a formal public participation process patterned after DTSC and USEPA's CERCLA driven programs, whereby routine meetings with citizen groups are held, written Fact Sheets are routinely prepared and there is a more structured process for considering the public's comments regarding proposed site investigation and cleanup activities.

At the meeting, ATSDR stated they would pursue a study to determine if there was an environmental connection between pollution pathways from Wyle and the incidents of cancer in the surrounding community. DTSC and Board staff stated they would discuss possible scenarios to develop a public participation process that would be suitable to the residents. Board staff noted that $8,000 has been allotted in a current contract with the Office of Environmental Health Hazard Assessment (OEHHA) to cover OEHHA staff costs for reviewing heath risk assessments for the site that will be prepared by Wyle. After the meeting, USEPA stated they would be collecting soil, water and possibly air samples at Wyle and in the surrounding community to determine if direct involvement by USEPA at the Wyle site was necessary.

Additional Information

Provided below is recent additional information regarding the Wyle site:

- In April 2003, USEPA announced they were re-evaluating the Wyle site under CERCLA because site conditions have changed and additional information is available since USEPA last assessed the site (an assessment in 1988 concluded that no further action by USEPA was necessary). The additional sampling referenced above that USEPA will be performing is part of this re-evaluation. USEPA stated it might take up to one year to complete their site assessment report.

- In letters dated April 11, April 18 and April 24, 2003, the Desert Sierra Cancer Surveillance Program (DSCSP) of the California Cancer Registry, presented their findings of a number of assessments of thyroid and other cancer types in the Norco Area. Since 1988, the State of California has required all cancer cases be reported to the California Cancer Registry. The DSCSP concluded that none of their findings identify cancer excesses in the Norco area since 1988.

- In May 2003, the Santa Ana Watershed Project Authority (SAWPA) collected three samples from each of four borings that were advanced to a depth of about nine feet along a trench alignment on Hillside Avenue, downgradient of, and immediately adjacent to, Wyle. The trench was being dug for the installation of the Arlington Desalter Pipeline. SAWPA analyzed the samples for various constituents of concern at Wyle, and the samples were non-detectable for all constituents.

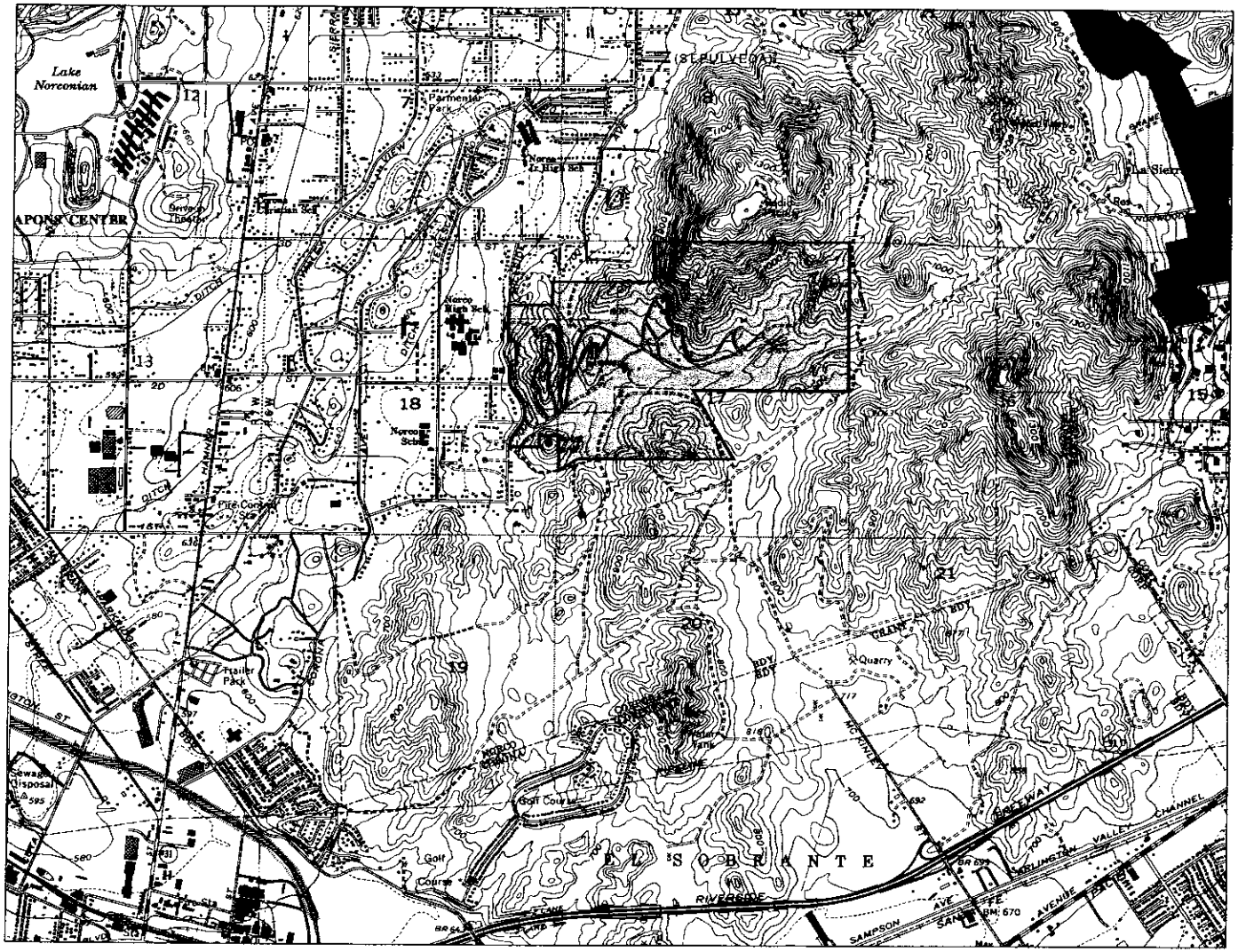
- On June 2, 2003, Board staff received a subsurface assessment report for Stoneridge Estates. Stoneridge Estates is an 82-unit residential community constructed in 2000 by Centex Homes along Wyle's southerly boundary. A land swap occurred between Wyle and Centex which resulted in a portion of Centex's property being swapped for a portion of Wyle's property. Wyle reportedly never actively used the property that was involved in the swap. The assessment was performed in July and August 2002 to assess the shallow soils beneath the site for environmental impacts. Soil gas samples from 57 locations were analyzed for VOCs, and 47 soil samples from 18 borings that were advanced to a depth of five feet were analyzed for various constituents of concern that have been found at Wyle. No constituents of concern were detected in the samples.

- On June 4, 2003, the Norco City Council voted to seek an independent consultant to obtain soil and groundwater samples in the neighborhoods surrounding Wyle.

- On June 4, 2003, Board staff received a letter report titled "Health Assessment for Surface Water near Wyle Laboratories Site Boundary", dated July 19, 2002. The report was prepared by Environ, Wyle's consultant. Environ conducted a screening human health risk assessment to evaluate the potential for exposure to chemicals in surface water in the ephemeral stream just before the surface water in the stream leaves Wyle's property (near MW-5A). Surface water would pond in this area and local residents have been concerned regarding the potential health effects to children who may come into contact with this water. Using reportedly very conservative assumptions, Environ concluded that the Estimated Cancer Risk and the Estimated Noncancer Hazard Index were significantly below the target levels recommended by USEPA and CalEPA, and, therefore, chemicals present in surface water near Wyle's boundary were not expected to pose a significant risk to children who may play in the area and come into contact with the water.

Proposed Activities by Board Staff

Board staff, with input from interested parties, is continuing to evaluate the two work plans that were recently submitted. Following the evaluation, staff will prepare a written response to the work plans. Board staff will also assure that all interested parties receive copies of all reports and correspondence regarding the Wyle site. Staff will continue to work with DTSC to develop a public participation process suitable to the residents. Staff will also work with USEPA, the City of Norco and Wyle to coordinate field activities proposed by these parties.



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Approximate Scale in Feet

Source: Basemap modified from U.S.G.S. Corona North, California 7.5 Minute Quadrangle Photorevised 1981

Legend

Approximate Site Boundary Wyle Laboratories

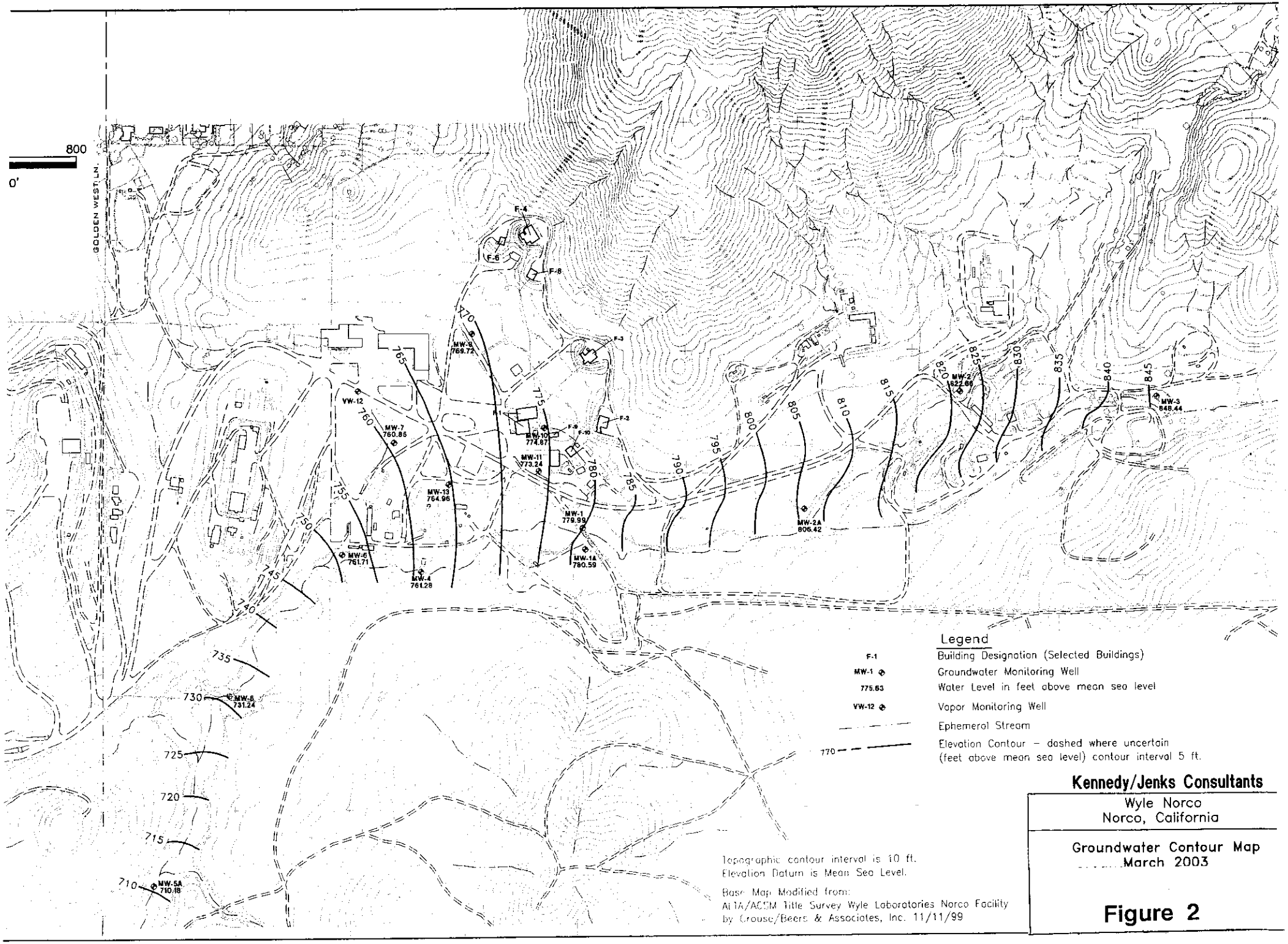
Ephemeral Stream (at site only)

Kennedy/Jenks Consultants

Wyle Norco
Norco, California

Site Location and Vicinity

August 1999
K/J 994012.00
Figure 1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MW-9
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710
775
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820
825
830
835
840
845
Legend
F-1 Building Designation (Selected Buildings)
MW-1 Groundwater Monitoring Well
775.63 Water Level in feet above mean sea level
VW-12 Vapor Monitoring Well
Ephemeral Stream
770 Elevation Contour – dashed where uncertain (feet above mean sea level) contour interval 5 ft.
Topographic contour interval is 10 ft.
Elevation Datum is Mean Sea Level.
Base Map Modified from:
ALTA/ACSM Title Survey Wyle Laboratories Norco Facility
by Crouse/Beers & Associates, Inc. 11/11/99
Kennedy/Jenks Consultants
Wyle Norco
Norco, California
Groundwater Contour Map
March 2003
Figure 2